

## SECTION 22 0529

### HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

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#### LANL MASTER SPECIFICATION

When editing to suit project, author shall add job-specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the ESM Mechanical POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within "stars" during editing.

Specification developed for ML-3 / ML-4 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

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#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Pipe hangers, supports, hanger rods, inserts, and sleeves.

##### 1.2 SUBMITTALS

- A. Submit the following in accordance with Section 01 3300, Submittal Procedures.
  - 1. Catalog data of hangers and supports.

#### PART 2 PRODUCTS

##### 2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Alternate products may be accepted; follow Section 01 2500, Substitution Procedures

##### 2.2 PIPE HANGERS AND SUPPORTS

- A. Hangers for Pipe Sizes 1/2 to 1-1/2 inches: Carbon steel, adjustable, clevis, or malleable iron or carbon steel, adjustable swivel, split ring.
- B. Hangers for Cold Pipe Sizes 2 inches and over: Carbon steel, adjustable, clevis.
- C. Hangers for Hot Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.
- D. Hangers for Hot Pipe Sizes 6 inches and over: Adjustable steel yoke, cast iron roll, double hanger.
- E. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

- F. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 inches and over: Steel channels with welded spacers and hanger rods, cast iron roll.
- G. Wall Support for Pipe Sizes to 3 inches: Strut clamp.
- H. Wall Support for Pipe Sizes 4 inches and over: Welded steel bracket and wrought steel clamp.
- I. Wall Support for Hot Pipe Sizes 6 inches and over: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron roll.
- J. Vertical Support: Steel riser clamp.
- K. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- L. Floor Support for Hot Pipe Sizes to 4 inches Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- M. Floor Support for Hot Pipe Sizes 6 inches and over: Adjustable cast iron roll and stand, steel screws, and concrete pier or steel support.
- N. Copper Pipe Support: Copper-plated, carbon steel ring.

## 2.3 HANGER RODS

- A. Mild steel threaded both ends, threaded on one end, or continuous threaded.

## 2.4 INSERTS

- A. Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment; top slot for reinforcing rods; lugs for attachment to forms; size inserts to suit threaded hanger rods.

## 2.5 SLEEVES

- A. Sleeves for Pipes through Non-Fire Rated Beams, Walls, Footings, and Floors: Steel pipe or 18 gage galvanized steel.
- B. Sleeves for Pipes through Fire Rated and Fire Resistive Floors, Walls, and Roof: Prefabricated fire rated sleeves including seals, approved by a nationally recognized testing laboratory.
- C. Sleeves for Ductwork: Galvanized steel.

## PART 3 EXECUTION

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 NOTE: Verify that supporting structural elements are adequate to support the imposed hanger load.  
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### 3.1 INSERTS

- A. Provide inserts for placement in concrete forms.
- B. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
- C. Provide hook rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
- D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
- E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut.

### 3.2 PIPE HANGERS AND SUPPORTS

- A. Support piping to maintain its alignment, and prevent sagging.
- B. Place hangers within 12 inches of each horizontal elbow.
- C. Support vertical piping with riser clamps secured to the piping and resting on the building structure at each floor.
- D. Install hangers to provide minimum 1/2 inches space between finished covering and adjacent work.
- E. Use hangers with 1-1/2 inches minimum vertical adjustment.
- F. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- G. Support riser piping independently of connected horizontal piping.
- H. Provide copper plated hangers and supports for copper piping.
- I. Provide insulation continuous through hangers and rollers. Protect insulation by steel shields in accordance with Section 22 0713, Plumbing and HVAC Insulation.
- J. Provide hangers on piping on each side of, and within 6 inches of, hubless pipe couplings so the couplings will bear no weight.
- K. Provide supports that allow free axial movement and only support the weight of the piping or tubing. Provide additional hangers or brackets to support valves, flanges, specialties, etc., to prevent excessive deflection.
- L. Prime coat exposed steel hangers and supports. Refer to Section 09 9100, Painting. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

### 3.3 HANGER SPACING

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The hanger spacing tables are for straight runs of standard and heavier steel pipe, and Type L and heavier copper tube. They are not intended to be used as specifications for all installations. These do not apply where span calculations are made or where there are concentrated loads between supports.

For Victaulic flexible systems and other piping material, consult with the manufacturer for suggested hanger spacing. For Victaulic rigid couplings used in steel piping systems, the spacing below may be used.

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A. Plumbing Piping - Water, Gas, DWV

1. Comply with the requirements of the Uniform Plumbing Code, (IAPMO), Hangers and Supports.

B. Fire Protection Piping

1. Comply with the requirements of NFPA-13, for hanger spacing and materials.

C. Steam/Condensate Piping Inside Building, up to 15 psig.

1. Comply with the requirements of ASME B31.9, Building Services Piping.
2. Maximum Hanger Spacing:

Steel Pipe Size (Inches)	1	1 1/4	1 1/2	2	3	4	6	8
Spacing (Feet)	9	11	13	15	17	21	25	28

D. Steam/Condensate Piping Outside Building, up to 150 psig.

1. Comply with the requirements of ASME B31.1, Power Piping.
2. Maximum Hanger Spacing

Steel Pipe Size (Inches)	1	1 1/4	1 1/2	2	3	4	6	8
Spacing (Feet)	9	9	9	13	15	17	21	24

E. Water Building Services Piping, up to 150 psig (Heating, Cooling, and Tower Water)

1. Comply with the requirements of ASME B31.9, Building Services Piping.
2. Maximum Hanger Spacing

Size (Inches)	Less Than 1	1	1 1/4	1 1/2	2	3	4	6	8
Spacing (Feet) Steel Pipe	6	9	11	12	13	15	17	20	21
Spacing (Feet) Copper Tube	5	7	7	8	9	10	12	14	16

F. Air and Laboratory Gas Building Services Piping, up to 150 psig

1. Comply with the requirements of ASME B31.9, Building Services Piping.
2. Maximum Hanger Spacing:

Size (Inches)	1/4 to 1/2	5/8 to 7/8	1	1 1/4	1 1/2	2	3	4	6	8
Spacing (Feet) Steel Pipe	6	6	9	11	13	15	17	21	25	28
Spacing (Feet) Copper/SS Tube	3	5	7	9	10	12	15	17	21	24

G. Refrigeration Piping

1. Comply with the requirements of the Uniform Mechanical Code, (ICBO) Refrigeration Supports.

### 3.4 HANGER ROD SIZE

A. Plumbing (UPC) Piping (Water, Gas, DWV)

Pipe Size (Inches)	1/2 - 4	5 - 8
Rod Size (Inches)	3/8	1/2

B. HVAC Piping (Steam, Condensate, Water, Air, Laboratory Gas)

Pipe Size (Inches)	1/2 - 2	2	4 - 6	8 - 12
Rod Size (Inches)	3/8	1/2	5/8	7/8

END OF SECTION

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Do not delete the following reference information:

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This project specification is based on LANL Master Specification 22 0529 Rev. 0, dated January 6, 2006.